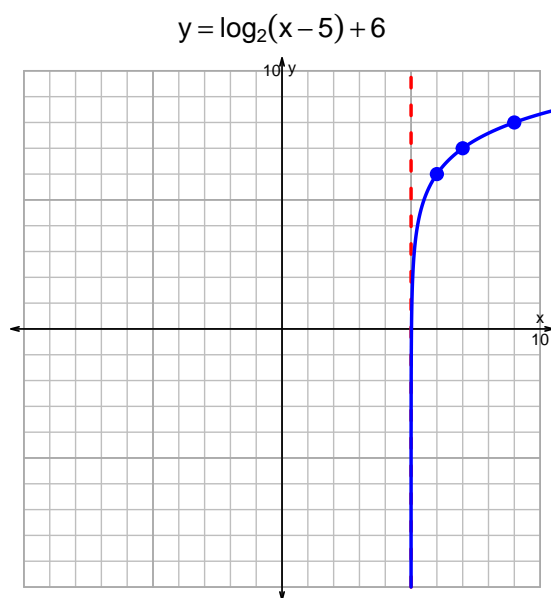
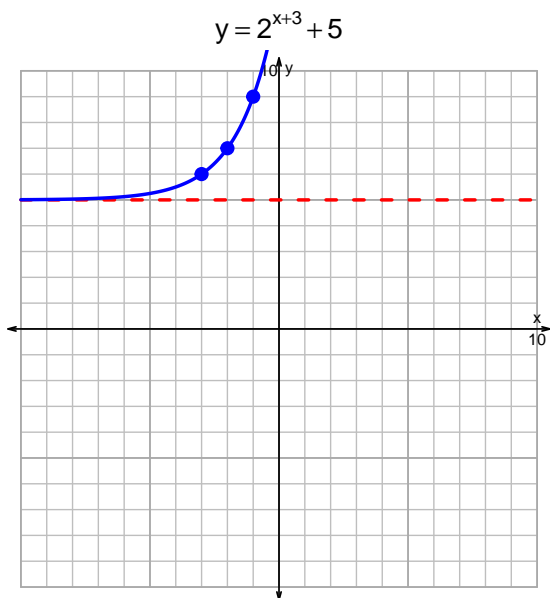


Name: _____

Date: _____

s18QUIZ: EXP LOG (SOLUTION v120)

- Graph $y = 2^{x+3} + 5$ and $y = \log_2(x - 5) + 6$ on the grids below. Also, draw any asymptotes with dotted lines.



- Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$19 = \left(\frac{3}{5}\right) \cdot 10^{-4t/7}$$

Divide both sides by $\frac{3}{5}$.

$$\frac{19 \cdot 5}{3} = 10^{-4t/7}$$

Take log, base 10, of both sides.

$$\log_{10} \left(\frac{19 \cdot 5}{3} \right) = \frac{-4t}{7}$$

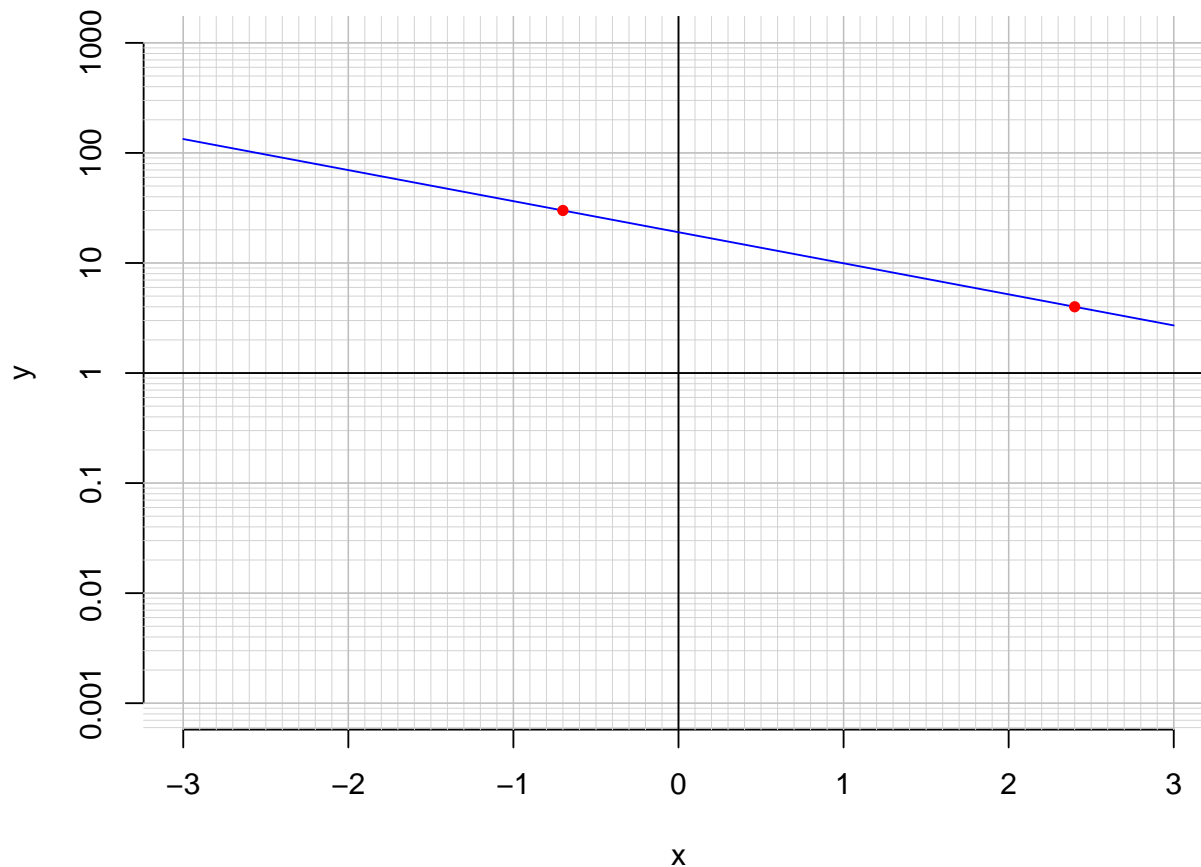
Divide both sides by $\frac{-4}{7}$.

$$\frac{-7}{4} \cdot \log_{10} \left(\frac{19 \cdot 5}{3} \right) = t$$

Switch sides.

$$t = \frac{-7}{4} \cdot \log_{10} \left(\frac{19 \cdot 5}{3} \right)$$

3. An exponential function $f(x) = 19 \cdot e^{-0.65x}$ is graphed below on a semi-log plot.



- a. Using the plot above, evaluate $f(-0.7)$.

$$f(-0.7) = 30$$

- b. Express $f^{-1}(x)$, the inverse of f .

$$f^{-1}(x) = \frac{-1}{0.65} \cdot \ln\left(\frac{x}{19}\right)$$

- c. Using the plot above, evaluate $f^{-1}(4)$.

$$f^{-1}(4) = 2.4$$